

Weekly Report

2016.09.26-2016.10.02

1.This Week

Security Projects

- 1.revise the remaining and newly discovered bugs of the system.
- 2.write the create new node function of the system.
- 3.Get real data form data base to visualize.

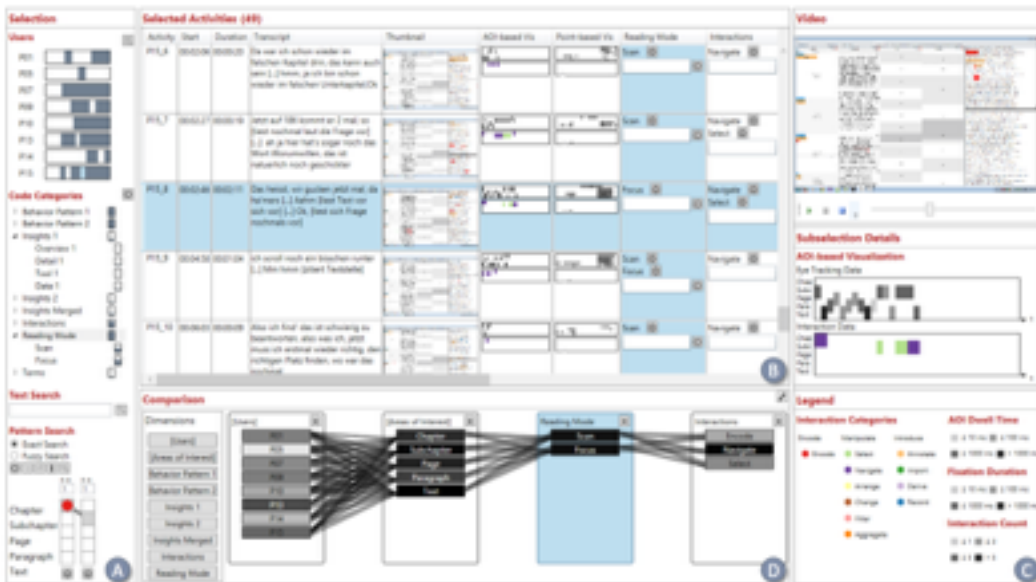
TCP Tree Paper

- 1.revise section 7 and 8 in this paper according to the newly developed system.

Paper Reading

1. Visual Analysis and Coding of Data-Rich User Behavior

2016 VIS



This paper presented a visual analytics approach that supports coding of user behavior as part of qualitative or mixed-method user evaluations of interactive interfaces. The entire interface contains four panels: (A) selection panel listing users and code categories and so on (B) selected activities panel that represents all selected user activities (C) Sidebar that provides additional info. (D) comparison panel that allows contrasting codes.

This paper does an interesting job in analyzing user behavior data generated during user studies. Changing behavior data into textual codes and displaying results in a tabular way is really novel.

However, it suffers from poor scalability and doesn't explain the significance of this work (why this work is useful?).

2.EventAction: Visual Analytics for Temporal Event Sequence Recommendation

2016 VIS



This paper described a novel approach for prescriptive analytics that enables analysts to conduct similarity-based data-driven action planning. The entire interface contains 7 views: (a) workflow control panel, (b) current record timeline, (c) activity summary view, (d) outcome distribution view, (e) similarity distribution view, (f) similar archived record timelines, and (g) correlation view.

This paper does a pioneering job in supporting decision making by representing the necessary information of the entire decision making work flow (such as outcome distribution and similarity distribution). But it suffers from poor scalability and it just represent statistical results in the interface without any aggregation. The views in the interface separately provide statistical results and barely have any connection.

3.Shape Grammar Extraction for Efficient Query-by-Sketch Pattern Matching in Long Time Series

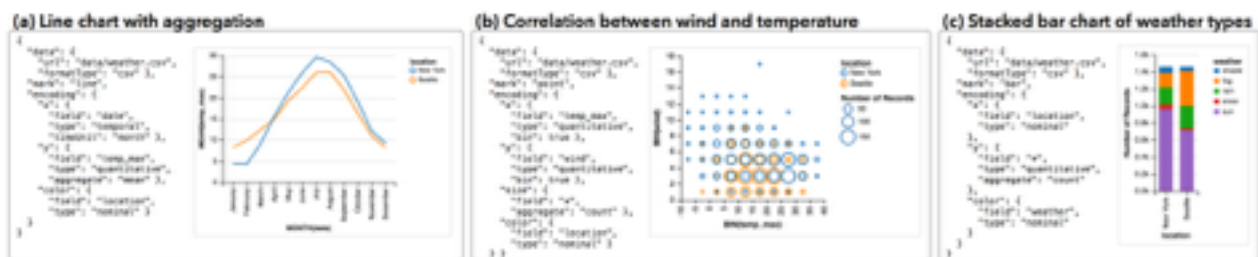
2016 VIS

This paper proposes an efficient method for exploring user-sketched patterns, incorporating the domain expert's knowledge, in time series data through a shape grammar based approach. The entire method involves four basic steps: (1) symbolic representation of initial time series data (2) Classification of the gradient ratios (3) a progressive, hierarchical, locally adaptive, user controlled smoothing operation on the raw data (4) search for patterns of interest in the time series by sketching an approximate pattern.

Such a method removes the need for arithmetic re-computation for pattern relaxation and matching and could be useful for similarity comparison of long time-series data.

4. Vega-Lite: A Grammar of Interactive Graphics

2016 VIS



This paper presents Vega-Lite, a high-level grammar that enables rapid specification of *interactive* data visualizations. It combines a traditional grammar of graphics, providing visual encoding rules and a composition algebra for layered and multi-view displays, with a novel grammar of interaction.

G2 provided by Ali is similar to Vega-Lite, but Vega-lite is more professional and can be compiled to vega (also its limitation). To be honest, this paper is an application in developing new practical and easy-to-use visualization grammar. It does well, but not good enough because it just does what every visualization developer can do and can think of.

5. Authoring Data-Driven Videos with DataClips

2016 VIS



This paper introduces DataClips, an authoring tool for creating data videos, aimed at non-experts. DataClips allows non-experts to assemble data-driven “clips” together to form longer sequences. The entire user interface has 3 views: (1) Clip Library, populated with a set of data-driven clips (2) My Clips, a workspace panel where clips are previewed and sequenced to form a longer video (3) Clip Configuration panel, where users can assign data to each individual clip and customize its visual appearance.

This paper provide guidance for our network security project. Although its clip library and visualization library is limited, its idea is interesting and useful.

2.To Do

- (1) Revise bugs of the Security Project.
- (2) Program the unfinished functions of the Security Project
- (3) Look for research topics of network security from the Security Project
- (4) Read Vis 2016 Papers before we participate Vis
- (5) Revise Zongzhuang's Survey.